

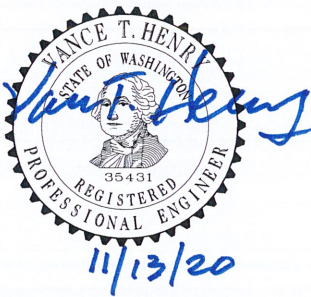
# COMBINED DESIGN APPROVAL AND PROJECT DEVELOPMENT APPROVAL

## I-82/South Union Gap Interchange – Construct Ramps

I-82,MP 37.0 to MP 38.5  
WIN: E08209U      PIN: 508209U

November 16, 2020

**WASHINGTON STATE DEPARTMENT OF TRANSPORTATION**  
South Central Region  
Union Gap, Washington

SIGNATURES		Template Version 1.0
ENGINEER OF RECORD	REGION APPROVAL	
<p>This document has been prepared under my direct supervision in accordance with RCW 18.43 and appropriate WSDOT manuals.</p>  <p>Name, Title, Company, &amp; Address: Vance Henry, Sr. Vice President H.W. Lochner 3071 E. Franklin Road, Suite 303 Meridian, ID 83642</p>	<p>Apply electronic signature using Adobe or Bluebeam including name and date.</p>	
	ARA- Project Development	
	ASSISTANT STATE DESIGN ENGINEER APPROVAL	
	FHWA APPROVAL	

### 3.3 Design Analysis

*The Design Approval noted there were no design analyses for this project. Approval for the Design Approval package was from SC Region, HQ Design, and FHWA.*

### 3.4 Maximum Extent Feasible

*There are no pedestrian facilities included in the scope of this project therefore this section is Not Applicable to the Project*

### 3.5 Plans for Approval

*The Interchange Plans for Approval are included as part of the documentation package.*

### 3.6 Alignment Plans and Profiles

*The alignments and profiles were significantly modified from that included in the Proposal as follows:*

*The existing off ramp from Northbound SR97 to Main Street (known as the C line) was revised as follows:*

- *The existing lane width was reduced to 12' in the ATCs. During the DB contract progression, the lane width was widened to 14' to provide additional lateral flexibility to vehicular traffic, specifically trucks.*

*The new off ramp from Eastbound I-82 to Main Street (known as the A Line), was revised as follows:*

- *The lane width was widened from 12' to 14' to allow increased lateral distance for vehicular traffic.*
- *Wall 7 was revised to a Cast in Place wall in order to shift it laterally sufficient distance to allow for the widening of the C and A lanes while also staying out of the OHWM of Wide Hollow Creek.*
- *Wall barrier with moment slab was added to Wall 7 in order to maximize the space available to traffic on the roadway and shoulders.*
- *The merge of the A line and C line was revised such that it occurred on a where both off ramps were in a tangent.*

*The existing Main Street (known as the M line) was shifted by several feet to allow for the changes to the A and C alignments. The C line alignment remained unchanged, but the lane width was increased to 14'. The A line lane was increased to 14' as well. Finally, the merge of the A and C alignments was designed such that it occurred in tangent sections (ATCs showed this occurring in curve sections). As a result, the M line needed to shift laterally to provide sufficient lane and shoulder width on all three alignments.*

*The new on ramp from Main Street to Westbound I-82 (known as the B Line), was revised as follows:*

- *A gore area was added at the joining of the B line with WB I-82 in order to create a longer merge distance and keep traffic separated until the merge point.*

- *The roadway was widened to allow for concrete barrier along the length of the outside of the curve.*
- *Both of the above revisions involved changing the horizontal alignment.*

*The existing on ramp from Main Street to Eastbound 82 (known as the X line) was designed to tie into the new alignment necessary for the bridge over I82 (the B Line) without resulting in work occurring outside the Right of Way. A geo-reinforced slope was implemented to support the X line while keeping work inside the Right of Way.*

### 3.7 Cost Estimate

*This is a Design-Build project. As such the Basis of Estimate is the proposal bid submitted by the Design-Builder.*

## 4 Environmental Documentation

*NEPA and SEPA permits were preliminarily developed prior to the issuing of the RFP. Copies of the Permits are included in Appendix E of the RFP.*

*During Proposal development and Design, the limitations from those permits were included in the design requirements for the Design-Builder. Of primary importance were that no work could occur inside the OHWM of Wide Hollow Creek, and the overall impact to wetlands must be below 0.5 acre total.*

*The design, as approved under the ATCs, reduced the wetland impact to 0.38 acres. No work was performed in the OHWM of Wide Hollow Creek. The permits were revised to reflect the changes/reduction in overall wetland impacts*

*Copies of permits are included in the Design Documentation and in Appendix E of the RFP.*

## 5 Supporting Documents Summary

*SD.5.4 - Barrier length of need: Calculations pertaining to the necessary length of need for roadside safety features can be found here*

*SD.5.7 – Geological Report: Information pertaining to subsurface and geologic conditions can be found in the Final Geotechnical Documentation Package.*

*SD.5.8 – Hydraulics Report: Final Hydraulics Report, calculations and design discussion. The RFP include a draft, conceptual report. This includes the final report detailing what was constructed.*

*SD.5.10 – Illumination (Additional): Illumination design completed (see plans). Calculations found here.*

*SD.5.11 – ITS Systems Engineering Documentation: For ITS design see plans. Calculations found here.*

*SD.5.12 – Materials/Surface Reports: Materials requirements for embankment and roadway can be found in the Final Geotechnical Documentation Package.*

*SD.5.20 – Roadside Clear Zone Inventory. Inventory list of post-construction roadside clear zone can be found [here](#).*

## 6 Other Approvals and Justifications

**Approval:**

*There was an impact attenuator system designed and installed on mainline I82 (the L Line) near the Variable Message Sign. The RFP suggested use of REACT 350 attenuators, per the request of WSDOT Maintenance, and required WSDOT review and approval for use of any other attenuator system. Due to space restrictions as a result of an existing paved turn-around on I82, a shorter attenuator system was used. Had a REACT 350 been used a relocation of the median turnaround would have been required; the process of which would have delayed the completion of the project. The background and design narrative for this issue is included in the design documentation.*

## 7 Other Items

*There are no additional issues which significantly shaped the design.*

<b>PROJECT DEVELOPMENT APPROVAL</b>			
<b>Index #</b>	<b>Description</b>	<b>In PDA?</b>	<b>Comments</b>
<b>PDA.1.0</b>	<b>Introductory Documents</b>		
PDA.1.1	<b>Table of Contents</b>	Same as DA	
PDA.1.2	<b>Memorandum</b>	Included	
PDA.1.3	<b>Vicinity Map</b>	Updated	
<b>PDA.2.0</b>	<b>Project Summary Documents</b>		
PDA.2.1	<b>Project Profile</b>	Same as DA	
PDA.2.2	<b>Environmental Review Summary</b>	Same as DA	
PDA.2.3	<b>Basis of Design</b>	Same as DA	
<b>PDA.3.0</b>	<b>Core Documents</b>		
PDA.3.1	<b>Design Parameter Sheets</b>	Updated	Final Version included
PDA.3.2	<b>Safety Analysis</b>	Updated	Included in the Approved DB ATCs
PDA.3.3	<b>Design Analysis</b>	N/A	
PDA.3.4	<b>Maximum Extent Feasible</b>	N/A	
PDA.3.5	<b>Plans for Approval</b>	Updated	Approved Interchange Plans.
PDA.3.6	<b>Alignment Plans and Profiles</b>	Updated	Final alignment and profiles can be found in the contract plans.
PDA.3.7	<b>Cost Estimate</b>	N/A	DB Proposal Amount became the Bid Amount
<b>PDA.4.0</b>	<b>Environmental Documentation</b>		
PDA.4.1	<b>SEPA</b>	Same as DA	Copies included in Appendix E of RFP
PDA.4.2	<b>NEPA</b>	Same as DA	Copies included in Appendix E of RFP

<b>5 - DDP SUPPORTING DOCUMENTS</b>					
Index #	Description	Included In			Comments
		CD A	PD A	N/ A	
SD.5.1	Access Revision Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.2	Access Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.3	Access Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.4	Barrier Length of Need Calculations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SD.5.5	Bridge Vertical Clearance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Included in DA
SD.5.6	Fencing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.7	Geological Reports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Final Geotechnical Documentation Package
SD.5.8	Hydraulics Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SD.5.9	Intersection Control Evaluation (ICE)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.10	Illumination (Additional)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SD.5.11	ITS Systems Engineering Documentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SD.5.12	Materials/Surface Reports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Final Geotechnical Documentation Package
SD.5.13	Maximum Extent Feasible (New)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.14	Median Crossover Approval	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.15	MUTCD Request for Experimentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.16	Pedestrian Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.17	Public Art Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.18	Railroad Crossing Evaluation Team Findings	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.19	Railroad Grade Crossing Petitions and WUTC Orders	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.20	Roadside Clear Zone inventory	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	This is for post-construction
SD.5.21	Signals Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.5.22	Traffic Analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SD.5.23	Value Engineering Recommendation Approval Form	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

6 - Other Approvals and Justifications					
Index #	Description	Included In			Comments
		CDA	PDA	N/A	
SD.6.1	Approvals	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Use of GuardGuard II attenuator at the VMS Sign location on I82
SD.6.2	Justifications	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SD.6.3	Design Decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7 - Other Items					
Index #	Description	Included In		Comments	
		CDA	PDA		
SD.7.1		<input type="checkbox"/>	<input type="checkbox"/>	N/A	
SD.7.2		<input type="checkbox"/>	<input type="checkbox"/>	N/A	

**Abbreviations:**

- DA = Design Approval
- DDP = Design Documentation Package
- DM = Design Manual
- PDA = Project Development Approval
- SD = Supporting Document